

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in EPO on December 5, 2001. It is noted, however, that applicant has not filed a certified copy of the 01000711 application as required by 35 U.S.C. 119(b).

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. References 4,239,968; 4,587,036; 4,535,237; 5,227,254 and 5,380,599 are listed in the specification but are not listed on the information disclosure statement.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Art Unit: 1774

4. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Regarding claim 20, the word "means" is preceded by the word(s) "protective coating is provided by" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-7 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al., U.S. Patent Number 6,344,657.

8. Matsumoto discloses a stimuable phosphor sheet (or radiation image panel) having a transparent support film, a stimuable phosphor layer, a binding medium, a protective film coating and particles of titanium dioxide present in the film as per instant claims 1 -3 (see column 4, lines 40-68 and column 7, lines 21-39). The reference also discloses that the binder medium can include polyalkyl(meth)acrylate, vinyl chloride-vinyl acetate copolymer or a linear

Art Unit: 1774

polyester as per instant claims 7 and 17 (column 6, lines 14-22). Additionally, the reference discloses that the ratio between the binder and the phosphor can be 1:1 to 1:100 as per instant claim 16 (see column 6, lines 34-44). It is disclosed in the reference that BaFBr:Eu can be used as a stimuable phosphor as per instant claim 18 (see Example 1). The reference discloses a surface roughness in the range of 0.1 to 0.4 microns. Although the reference does not disclose the surface roughness in the range of 3 to 8 microns, the reference does disclose that the surface roughness can be altered due to heating and pressing. The surface roughness affects the light-scattering properties. Discovery of optimum values of result effective variables involves only routine skill in the art in re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA). Therefore, it would have been obvious to one of ordinary skill in the art to have the surface roughness of the protective coating be in the range of 3 to 8 microns as per instant claims 4-6 in order to achieve greater light scattering.

9. Claims 1-3 and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al., U.S. Patent Number 6,344,657 in view of Kuriyama et al., U.S. Patent Number 5,925,473.

10. Matsumoto discloses a stimuable phosphor sheet (or radiation image panel) having a transparent support film, a stimuable phosphor layer, a binding medium, a protective film coating and particles of titanium dioxide present in the film as per instant claims 1-3 (see column 4, lines 40-68 and column 7, lines 21-39). The reference discloses a surface roughness in the range of 0.1 to 0.4 microns. Although the reference does not disclose the surface roughness in the range of 3 to 8 microns, the reference does disclose that the surface roughness can be altered due to heating and pressing. The surface roughness affects the light-scattering

Art Unit: 1774

properties. Discovery of optimum values of result effective variables involves only routine skill in the art in re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA). Therefore, it would have been obvious to one of ordinary skill in the art to have the surface roughness of the protective coating be in the range of 2 to 10 microns as per instant claim 1 in order to achieve greater light scattering. Matsumoto does not disclose the amount of white pigment present in the composition. Kuriyama teaches a radiation image storage panel having a stimutable phosphor layer, a resin binder and a protective film wherein titanium dioxide is used as light-scattering particles (see abstract and Examples 4 to 6). The Kuriyama reference also discloses that the light-scattering fine particles can be present in the amount of 1 to 30 weight percent as per instant claims 11-15 (see column 3, lines 10-13). The amount of titanium dioxide present in the composition affects the dispersability of the particles in the resin composition and greater light-scattering effect. Therefore, it would have been obvious to one of ordinary skill in the art to have the titanium dioxide present in the amount of 1 to 30 weight percent in order to achieve greater light scattering due to increased particle dispersion.

11. Claims 1-3 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al., U.S. Patent Number 6,344,657 in view of Van Havenbergh et al., U.S. Patent Number 5,466,541.

Matsumoto discloses a stimutable phosphor sheet (or radiation image panel) having a transparent support film, a stimutable phosphor layer, a binding medium, a protective film coating and particles of titanium dioxide present in the film as per instant claims 1 -3 (see column 4, lines 40-68 and column 7, lines 21-39). The reference discloses a surface roughness in the range of 0.1 to 0.4 microns. Although the reference does not disclose the surface roughness in the range of 3 to

Art Unit: 1774

8 microns, the reference does disclose that the surface roughness can be altered due to heating and pressing. The surface roughness affects the light-scattering properties. Discovery of optimum values of result effective variables involves only routine skill in the art in re Boesch, 617 F2. 2d 272, 205 USPQ 215 (CCPA). Therefore, it would have been obvious to one of ordinary skill in the art to have the surface roughness of the protective coating be in the range of 2 to 10 microns as per instant claim 1 in order to achieve greater light scattering. The Matsumoto reference does not disclose using a urethane acrylate polymer as the binder as per instant claims 8-10. Van Havenbergh teaches a luminescent radiographic system comprising a support, a phosphor-binder layer and a protective film layer (see abstract and column 3, line 14-column 4, line 28). Van Havenbergh teaches an aromatic polyester-urethane acrylate used as the binder. The use of a urethane acrylate assists with the anticurling of the protective film. Therefore, it would have been obvious to one of ordinary skill in the art to use a urethane acrylate in order to compensate for the surface contracting tensile stress as shown by the Van Havenbergh reference in column 14, lines 26-36.

12. Claims 1 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al., 6,344,657 in view of Yamazaki et al., U.S. 4,728,583.

Matsumoto discloses a stimuable phosphor sheet (or radiation image panel) having a transparent support film, a stimuable phosphor layer, a binding medium, a protective film coating and particles of titanium dioxide present in the film as per instant claim 1 (see column 4, lines 40-68 and column 7, lines 21-39). The reference discloses a surface roughness in the range of 0.1 to 0.4 microns. Although the reference does not disclose the surface roughness in the range of 3 to 8 microns, the reference does disclose that the surface roughness can be altered due to heating

Art Unit: 1774

and pressing. The surface roughness affects the light-scattering properties. Discovery of optimum values of result effective variables involves only routine skill in the art in re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA). Therefore, it would have been obvious to one of ordinary skill in the art to have the surface roughness of the protective coating be in the range of 2 to 10 microns as per instant claim 1 in order to achieve greater light scattering. The Matsumoto reference does not disclose using CsBr:Eu stimuable phosphor as per instant claim 19. Yamazaki teaches a radiation image storage panel comprising a support, a phosphor layer which comprises a binder and a stimuable phosphor and a protective film coating (see abstract and column 3, line 15-column 4, line 21). The Yamazaki reference also discloses that CsBr:Eu is used as a stimuable phosphor (see column 8, lines 35-60). The use of a cesium bromide phosphor gives stimulated emission when excited. Therefore, it would have been obvious to one of ordinary skill in the art to use a cesium bromide phosphor as the stimuable phosphor in order to provide high luminance as shown by the Yamazaki reference in column 8, line 66-column 9, line 3.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (703) 305-4488. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly, can be reached at (703) 308-0449. The fax phone numbers for the Group are (703) 872-9310 {before finals} and (703) 872-9311 {after finals}.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is

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